WHAT IS CLAIMED IS:

1. A motor control method for a parallel hybrid electric vehicle, comprising;

calculating an estimated inertia moment of a motor;

calculating a forward compensation current based on the estimated inertia moment and an acceleration command ;

calculating a final current command based on a speed controller output current and the forward compensation current the speed controller output current being calculated based on the acceleration command; and

controlling the motor using the final current command.

2. The motor control method of claim 1, wherein the estimated inertia moment $\hat{J}_{eq}$ is calculated with the following equation:

$$\hat{J}_{eq} = \frac{1}{1+\tau s} \times \frac{T_e}{d\omega_m / dt}$$

where τ is a time constant, T_e is a motor torque, and ω_m is a motor speed.

3. The motor control method of claim 1, wherein the forward compensation current $i_{q\text{-}FF}$ is calculated with the following equation:

$$i_{q-FF} = a^* \times \frac{\hat{J}_{eq}}{K_T}$$

where a^* is an acceleration command, $\hat{J}_{eq}$ is the estimated inertia moment, and K_T is a motor torque constant.

4. The motor control method of claim 1, wherein the final current command is calculated by summing the speed controller output current and the forward compensation current.

5. The motor control method of claim 1, wherein the speed controller

output current is a difference between a speed command that is calculated based on the acceleration command a^* and a motor speed.

6. A motor control system for a parallel hybrid electric vehicle comprising:

a motor that is directly coupled to an engine of the parallel hybrid electric vehicle; and

a motor control unit controlling the motor,

wherein the motor control unit calculates an estimated inertia moment of the motor, and calculates a current command for controlling the motor based on the estimated inertia moment and an acceleration command.

7. The motor control system of claim 6, wherein the estimated inertia moment $\hat{J}_{eq}$ is calculated with the following equation:

$$\hat{J}_{eq} = \frac{1}{1+\tau s} \times \frac{T_e}{d\omega_m / dt}$$

where τ is a time constant, T_e is a motor torque, and ω_m is a motor speed.

8. The motor control system of claim 6, wherein the current command i_{qs}^* is calculated by summing a forward compensation current $i_{q\text{-}FF}$ and a speed controller output current $i_{q\text{-}PI}$, the forward compensation current $i_{q\text{-}FF}$ being calculated based on the estimated inertia moment $\hat{J}_{eq}$ and the acceleration command a^*, the speed controller output current $i_{q\text{-}PI}$ being calculated based on a difference between a speed command and a current motor speed.

9. The motor control system of claim 8, wherein the forward compensation current is calculated with the following equation:

$$i_{q-FF} = a^* \times \frac{\hat{J}_{eq}}{K_T}$$

where a^* is an acceleration command, $\hat{J}_{eq}$ is the estimated inertia moment, and K_T is a motor torque constant.

10. The motor control system of claim 8, wherein the speed controller output current $i_{q\text{-}PI}$ is a difference between a speed command ω_m^* that is calculated based on the acceleration command a^*, and a motor speed ω_m.